

# Potential Health Impacts of Construction and Demolition Activities



Presented to the Seattle City Council  
Housing, Human Services, Health and  
Culture Committee  
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Hazards can affect workers and/or the broader public; occupational exposures are much more prevalent.

**Worker hazard vs. public hazard**



# Types of Health Hazards

- **Chemical**
- **Physical**
- **Biological**
- **Ergonomic**



**Occupational Safety and Health reports that ergonomic hazards are the most frequently occurring health hazards in construction and the cause of most injuries.**

# Chemical Hazards

- Chemicals can exist in the form of:
  - **dusts, fumes, or fibers (solids)**
  - **liquids, mists**
  - **gases, vapors**
- Chemicals are found in a variety of products used on construction sites or may be one of several constituents of an existing building.

# **Examples of Chemical Hazards Associated with Demolition and Construction**

- Asbestos
- Lead
- Silica
- Carbon monoxide
- Solvents and paints

# How do chemicals enter the body?

- **Inhalation** – typically the most common way chemicals enter the body at work sites.
- **Ingestion** – typically accidental by swallowing, drinking, or smoking. Exception is young children who may intentionally ingest contaminated materials.
- **Absorption** – through contact with skin or eyes.
- **Injection** – enters the body when the skin is punctured; occurs rarely.

# Two types of health effects from chemical exposures

- Acute – appears immediately or within a short time following exposure. Example: headache, collapse, or death from CO exposure.
- Chronic – usually develops slowly as long as 15-20 years or more. Exposure can be one incident or repeated for a prolonged period. Example: lung cancer from exposure to asbestos.

# Physical Hazards

- Demolition and construction projects present potential physical hazards:
  - Noise
  - Vibration
  - Traffic, street closures, parking
  - Temperature extremes
  - Radiation, both ionizing (x-ray, isotopes) and non-ionizing (UV light, infrared, radio waves, lasers)



# Biological Hazards

- Disease or illness can occur from biological sources:
  - Microorganisms such as bacteria, viruses, fungi, molds. Histoplasmosis and leptospirosis are two examples of disease in this category. Rat and pigeon droppings would be examples of sources.
  - Demolition of buildings can result in the unwanted dispersal of rodent populations unless control is conducted prior to demolition.

# Where do waste materials move to off-site?

- Nine permitted or exempt Construction, Demolition, and Land (CDL) clearing facilities in King County (5 in Seattle).
- Wood, metal, concrete, roofing, paper, and soils are delivered, sorted, processed, and reused or land filled.
- KC Solid Waste Division estimated that 528,000 tons of CDL were recycled in a one year period (from mid 2007 to mid 2008).

# **Public agencies and their regulatory roles**

- Seattle Department of Planning and Development (DPD)
- Public Health—Seattle & King County (PHSKC)
- Puget Sound Clean Air Agency (PSCAA)
- Washington State Department of Labor & Industries (L & I)

# Seattle Department of Planning and Development

DPD issues building and demolition permits.

- Permits are issued after plan approval. DPD staff ensure that the activity meets code requirements and is subject to inspection.
- Demolition inspections usually focus on dust suppression, controlling debris haul routes, excessive noise, coordinating with City Light to ensure power is terminated, and sewer capping; following demolition, assure site is free of debris and secure.
- Advises demolition contractors to obtain and proceed in accordance with an asbestos survey.

# Public Health— Seattle & King County

- Issues permits for gas and plumbing in new construction and remodeling of commercial and residential buildings. Sites are subject to inspection and approval.
- Permits or exempts Construction and Demolition Recycling Facilities in King County.
- Researches requests from business and industry for clearance permits on questionable wastes and issues permits when appropriate.
- Investigates a variety of environmental health related complaints.

# Puget Sound Clean Air Agency

- Asbestos removal and demolition compliance program:
  - Require surveys, notifications, work practices, training and proper disposal.
- Responds to citizen complaints on dust and odor.
- Ability to issue penalties to violators.
- Coordinates with Washington State L & I compliance section.

# Washington State Department of Labor & Industries

- Provides information and requires contractors to complete asbestos survey prior to demolition.
- Compliance section can issue citations or penalties for violations resulting from inspections or complaint investigations.
- Consultation Services provides free, confidential workplace health hazard assessment upon employer invitation.

# What are the public's concerns?

- Hazardous material release during demolition, i.e. lead dust, asbestos – PSCAA (asbestos); WA State L & I (related to worker protection)
- Noise – DPD
- Rats – PHSKC
- Traffic/street closures/parking – DPD or Seattle Department of Transportation
- Vibrations – DPD
- Site security – DPD or Police
- Disposal and recycling of wastes – PHSKC



# Agencies responding to complaints

- **Seattle DPD** – Issues building and demolition permits and enforces code; **206-684-8850**
- **PHSKC** – Issues plumbing and gas piping permits and regulates CDL recycling facilities, **206-205-4394**
- **PSCAA** – Asbestos removal compliance and response to dust and odor complaints, **206-343-8800**
- **WA State L & I** – Asbestos surveys, investigates workplace violations, **206-515-2800**

The following agencies also may respond if there is a major environmental incident:

- **Washington State Department of Ecology**, **425-649-7000**
- **U.S. Environmental Protection Agency**, **206-553-1263**

# Questions and Discussion

## Panel presenters:

- Bill Lawrence, Public Health—Seattle & King County
- Cliff Portman, Seattle Department of Planning and Development
- Rick Hess, Puget Sound Clean Air Agency
- Don Lofgren, Washington State Labor & Industries Compliance
- Mark Soltow, Washington State Labor & Industries Consultations